



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304
(304) 926-0450
(304) 926-0452 fax

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

November 20, 2013

WELL WORK PERMIT

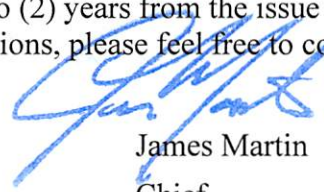
Horizontal 6A Well

This permit, API Well Number: 47-1706331, issued to EQT PRODUCTION COMPANY, is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

In addition to the applicable requirements of this permit, and the statutes and rules governing oil and gas activity in WV, this permit may contain specific conditions which must be followed. Permit conditions are attached to this cover letter.

Per 35CSR-4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926-0499 ext. 1654.



James Martin
Chief

Operator's Well No: WV 513142
Farm Name: HEASTER, CHARLES P. , ET AL
API Well Number: 47-1706331
Permit Type: Horizontal 6A Well
Date Issued: 11/20/2013

Promoting a healthy environment.

PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACOE). Through this permit, you are hereby being advised to consult with USACOE regarding this proposed activity.
2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
7. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
8. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.

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CASING AND TUBING PROGRAM

20)

TYPE	Size	New or Used	Grade	Weight per ft.	FOOTAGE: for Drilling	INTERVALS: Left in Well	CEMENT: Fill- up (Cu.Ft.)
Conductor	20	New	Varies	81	40	40	38
Fresh Water	13 3/8	New	MC-50	54	1,179	1,179	1,018
Coal	-	-	-	-	-	-	-
Intermediate	9 5/8	New	MC-50	40	2,963	2,963	1,151
Production	5 1/2	New	P-110	20	11,811'	11,811'	See Note 1
Tubing	2 3/8		J-55	4.6			May not be run. If run will be set 100' less than TD
Liners							

TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield
Conductor	20	24	0.635	-	Construction	1.18
Fresh Water	13 3/8	17 1/2	0.38	2,480	1	1.21
Coal	-	-	-	-	-	-
Intermediate	9 5/8	12 3/8	0.395	3,590	1	1.21
Production	5 1/2	8 1/2	0.361	12,640	-	1.27/1.86
Tubing						
Liners						

Packers

Kind:	N/A			
Sizes:	N/A			
Depths Set:	N/A			

Note 1: EQT plans to bring the TOC on the production casing cement job 1,000' above kick off point, which is at least 500' above the shallowest production zone, to avoid communication.

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21) Describe centralizer placement for each casing string.

- Surface: Bow spring centralizers – One at the shoe and one spaced every 500'.
- Intermediate: Bow spring centralizers– One cent at the shoe and one spaced every 500'.
- Production: One spaced every 1000' from KOP to Int csg shoe

22) Describe all cement additives associated with each cement type. Surface (Type 1 Cement): 0-3% Calcium Chloride

Used to speed the setting of cement slurries.

0.4% flake. Loss Circulation Material (LCM) is used to combat the loss of the cement slurry to a thief zone.

Intermediate (Type 1 Cement): 0-3% Calcium Chloride. Salt is used in shallow, low temperature formations to speed the setting of cement slurries. 0.4% flake. Loss Circulation Material (LCM) is used to combat the loss of whole drilling fluid or cement slurry (not filtrate) to a thief zone.

Production:

Lead (Type 1 Cement): 0.2-0.7% Lignosulfonate (Retarder). Lengthens thickening time.

0.3% CFR (dispersant). Makes cement easier to mix.

Tail (Type H Cement): 0.25-0.40% Lignosulfonate (Retarder). Lengthens thickening time.

0.2-0.3% CFR (dispersant). This is to make the cement easier to mix.

60 % Calcuim Carbonate. Acid solubility.

0.4-0.6% Halad (fluid loss). Reduces amount of water lost to formation.

23) Proposed borehole conditioning procedures. Surface: Circulate hole clean (Approximately 30-45 minutes) rotating & reciprocating one full joint until cuttings diminish at surface. When cuttings returning to surface diminish, continue to circulate an additional 5 minutes. To ensure that there is no fill, short trip two stands with no circulation. If there is fill, bring compressors back on and circulate hole clean. A constant rate of higher than expected cuttings volume likely indicates washouts that will not clean up.

Intermediate: Circulate hole clean (Approximately 30-45 minutes) rotating & reciprocating one full joint until cuttings diminish at surface. When cuttings returning to surface diminish, continue to circulate an additional 5 minutes. If foam drilling, to enhance hole cleaning use a soap sweep or increase injection rate & foam concentration.

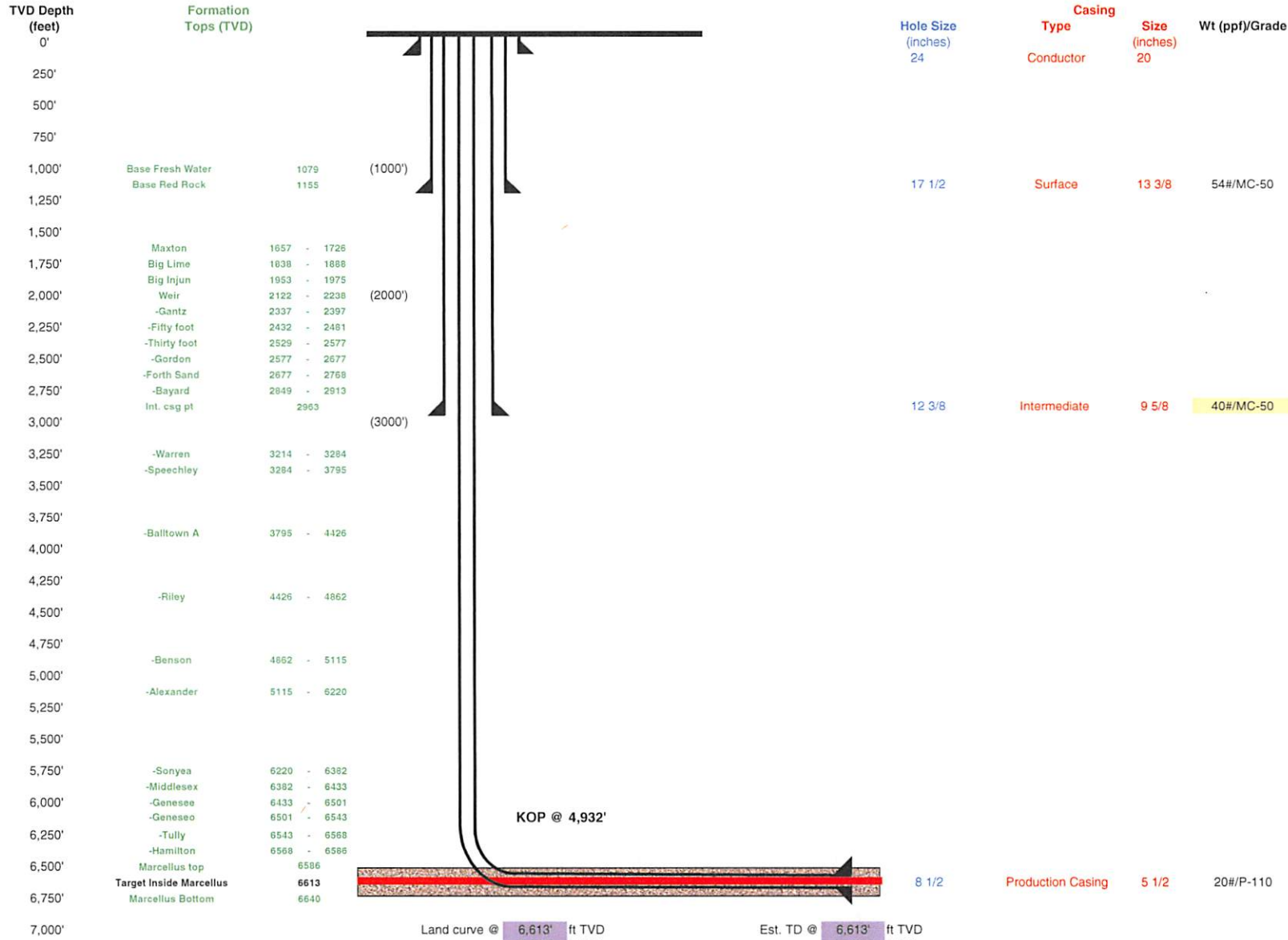
Production: Pump marker sweep with nut plug to determine actual hole washout. Calculate a gauge holes bottoms up volume. Perform a cleanup cycle by pumping 3-5 bottoms up or until the shakers are clean. Check volume of cuttings coming across the shakers every 15 minutes.

*Note: Attach additional sheets as needed.

17-06331

Well 513142 (OXF156H5)
EQT Production
Oxford
Doddridge West Virginia

Azimuth 155
Vertical Section 4462



Proposed Well Work:
Drill and complete a new horizontal well in the Marcellus formation.
The vertical drill to go down to an approximate depth of 4932'.
Then kick of the horizontal leg into the Marcellus using a slick water frac.

Land curve @ 6,613' ft TVD
7,390' ft MD
Est. TD @ 6,613' ft TVD
11,311' ft MD
3,920' ft Lateral

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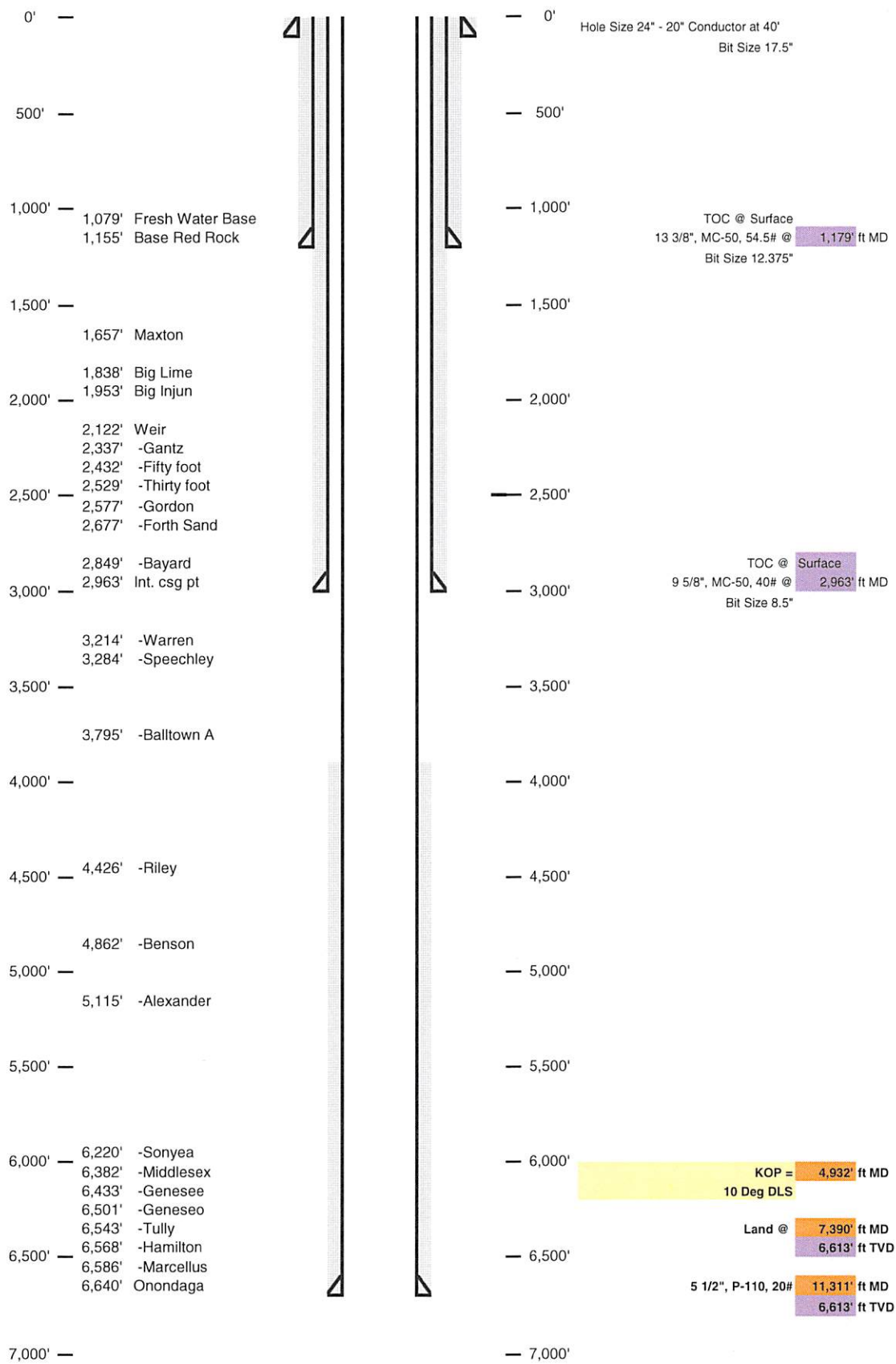
AUG - 2 2013

17-06331

Well Schematic
EQT Production

Well Name 513142 (OXF156H5)
County Doddridge
State West Virginia

Elevation KB: 1213
Target Marcellus
Prospect
Azimuth 155
Vertical Section 4462



Received

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WW-9
(5/13)Page 1 of 2
API No. 47 - 017 - 0
Operator's Well No. 513142STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS

Fluids/Cuttings Disposal & Reclamation Plan

Operator Name EQT Production Co. OP Code _____
Watershed (HUC10) Left Fork Arnolds Creek Quadrangle Oxford 7.5'
Elevation 1,203' County Doddridge District West Union
Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes x No _____Will a pit be used for drill cuttings: Yes: _____ No: X

If so please describe anticipated pit waste: _____

Will a synthetic liner be used in the pit? Yes _____ No X If so, what ml.? 60

Proposed Disposal Method For Treated Pit Wastes:

_____	Land Application	
•	Underground Injection	(UIC Permit Number <u>0014, 8462, 4037</u>)
_____	Reuse (at API Number _____)	
•	Off Site Disposal	(Supply form WW-9 for disposal location)
_____	Other (Explain _____)	

DCW
19-16-2013Will closed loop system be used? YESDrilling medium anticipated for this well? Air, freshwater, oil based, etc. Air and water based mud

If oil based, what type? Synthetic, petroleum, etc _____

Additives to be used in drilling medium?

MILBAR, Viscosifier, Alkalinity Control, Lime, Chloride Salts, Rate Filtration Control,Deflocculant, Lubricant, Detergent, Defoaming, Walnut Shell, X-Cide, SOLTEX Terra

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. _____

Landfill

If left in pit and plan to solidify what medium will be used? (Cement, Lime, sawdust) _____

n/a

Landfill or offsite name/permit number? _____

See Attached List

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature _____

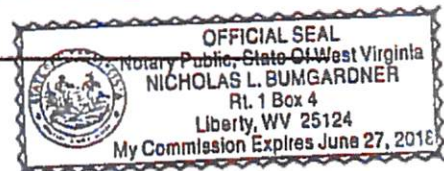
Company Official (Typed Name) _____

Company Official Title _____

Victoria J. RoarkPermitting SupervisorSubscribed and sworn before me this 19 day of JULY, 20 13

Notary Public

My commission expires _____

6/27/2018

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WW-9

Operator's Well No. 513142Proposed Revegetation Treatment: Acres Disturbed 37.43 Prevegetation pH 6.6Lime 3 Tons/acre or to correct to pH 6.5Fertilizer (10-20-20 or equivalent) 13 lbs/acre (500 lbs minimum)Mulch 2 Tons/acre

Seed Mixtures

Area I		Area II	
Seed Type	lbs/acre	Seed Type	lbs/acre
KY-31	40	Orchard Grass	15
Alsike Clover	5	Alsike Clover	5
Annual Rye	15		

Attach:

Drawing(s) of road, location, pit and proposed area for land application.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: Douglas NewtonComments: Picseed & Mulch install E+5 to WWDep regulationsTitle: Oil & Gas InspectorDate: 8-16-2013Field Reviewed? (/) Yes () No

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EQT Production Water plan

Offsite disposals for Marcellus wells

CWS TRUCKING INC.

P.O. Box 391
 Williamstown, WV 26187
 740-516-3586
 Noble County/Noble Township
 Permit # 3390

LAD LIQUID ASSETS DISPOSAL INC.

226 Rankin Road
 Washington, PA 15301
 724-350-2760
 724-222-6080
 724-229-7034 fax
 Ohio County/Wheeling
 Permit # USEPA WV 0014

TRI COUNTY WASTE WATER MANAGEMENT, INC.

1487 Toms Run Road
 Holbrook, PA 15341
 724-627-7178 Plant
 724-499-5647 Office
 Greene County/Waynesburg
 Permit # TC-1009

Waste Management - Meadowfill Landfill

Rt. 2, Box 68 Dawson Drive
 Bridgeport, WV 26330
 304-326-6027
 Permit #SWF-1032-98
 Approval #100785WV

Waste Management - Northwestern Landfill

512 E. Dry Road
 Parkersburg, WV 26104
 304-428-0602
 Permit #SWF-1025 WV-0109400
 Approval #100833WV

BROAD STREET ENERGY LLC

37 West Broad Street
 Suite 1100
 Columbus, Ohio 43215
 740-516-5381
 Washington County/Belpre Twp.
 Permit # 8462

TRIAD ENERGY

P.O. Box 430
 Reno, OH 45773
 740-516-6021 Well
 740-374-2940 Reno Office Jennifer
 Nobel County/Jackson Township
 Permit # 4037

KING EXCAVATING CO.

Advanced Waste Services
 101 River Park Drive
 New Castle, Pa. 16101
 Facility Permit# PAR000029132

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Office of Oil and Gas
 WV Dept. of Environmental Protection



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47-017-06331

Site Specific
Safety and Environmental Plan
For

EQT OXF 156 Pad

Doddridge County, WV

For Wells:

513142

Date Prepared:

July 31, 2013

V. A. J. K.
EQT Production

Permitting Supervisor
Title

7-31-13
Date

Douglas Newlin
WV Oil and Gas Inspector

Oil & Gas Inspector
Title

11-6-2013
Date

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Water Management Plan: Primary Water Sources



WMP- 01495

API/ID Number:

047-017-06331

Operator:

EQT Production Company

513142 (OXF156H5)

Important:

For each proposed primary water source (including source intakes for purchased water sources) identified in your water management plan, and summarized herein, DEP has made an evaluation concerning water availability over the specified date range. DEP's assessment is based on the following considerations:

- Statistical analysis of historical USGS stream gauge data (transferred to un-gauged locations as necessary);
- Identification of sensitive aquatic life (endangered species, mussels, etc.);
- Quantification of known existing demands on the water supply (Large Quantity Users);
- Minimum flows required by the Army Corps of Engineers; and
- Designated stream uses.

Based on these factors, DEP has provided, for each intake location (and origination point for purchased water), a reference gauge location and discharge flow reading which must be surpassed prior to withdrawals. Additionally, DEP has established a minimum passby flow at the withdrawal location which must also be surpassed prior to withdrawals. These thresholds are considered terms of the permit and are enforceable as such.

DEP is aware that some intake points will be used for mutiple wells and well sites. In these cases, the thresholds set by the Water Management Plan are to be interepreted as total withdrawal limits for each location over the specified date range regardless of how many wells are supported by that intake.

For all purchased water intakes, determinations of water availability are made at the original source intake location. It is the responsibility of the Oil and Gas Operator, not the seller, to cease withdrawal of water from the seller when flows are less than the minimum gauge reading at the stream gauge referenced by the Water Management Plan in order to protect stream uses.

Note that the determinations made herein are based on the best available data, but it is impossible to predict water availability in the future. While the DEP has carefully established these minimum withdrawal thresholds, it remains the operator's responsibility to protect aquatic life at all times. Approval to withdrawal is contingent upon permission from the land owner. It is the responsibility of the operator to secure and maintain permission prior to any withdrawals.

The operator is reminded that 24-48 hours prior to withdrawing (or purchasing) water, DEP must be notified by email at DEP.water.use@wv.gov.

APPROVED NOV 01 2013

Source Summary

17-06331

WMP- 01495

API Number: 047-017-06331
513142 (OXF156H5)

Operator: EQT Production Company

Stream/River

Source **Ohio River @ Westbrook Trucking Site** Pleasants Owner: **Stephen R. and Janet Sue Westbrook**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
9/15/2013	9/15/2014	6,600,000		39.384455	-81.25645

☐ Regulated Stream? Ohio River Min. Flow Ref. Gauge ID: 9999999 Ohio River Station: Willow Island Lock & Dam

Max. Pump rate (gpm): **1,260** Min. Gauge Reading (cfs): **6,468.00** Min. Passby (cfs)

DEP Comments: Refer to the specified station on the National Weather Service's Ohio River forecast website: <http://www.erh.noaa.gov/ohrfc//flows.shtml>

Source **Ohio River @ Select Energy** Pleasants Owner: **Select Energy**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
9/15/2013	9/15/2014	6,600,000		39.346473	-81.338727

☒ Regulated Stream? Ohio River Min. Flow Ref. Gauge ID: 9999998 Ohio River Station: Racine Dam

Max. Pump rate (gpm): **1,500** Min. Gauge Reading (cfs): **7,216.00** Min. Passby (cfs)

DEP Comments: Refer to the specified station on the National Weather Service's Ohio River forecast website: <http://www.erh.noaa.gov/ohrfc//flows.shtml>

Source **Middle Island Creek @ Travis Truck Pad** Doddridge Owner: **Michael J. Travis**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
9/15/2013	9/15/2014	6,600,000		39.308545	-80.781102

☐ Regulated Stream? Ref. Gauge ID: 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

Max. Pump rate (gpm): **4,200** Min. Gauge Reading (cfs): **72.16** Min. Passby (cfs) **28.33**

DEP Comments:

17-06331

Source **Middle Island Creek @ Rock Run** Doddridge Owner: **William Whitehill**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
9/15/2013	9/15/2014	6,600,000		39.298763	-80.760682

☐ Regulated Stream? Ref. Gauge ID: **3114500** MIDDLE ISLAND CREEK AT LITTLE, WV

Max. Pump rate (gpm): **1,680** Min. Gauge Reading (cfs): **62.89** Min. Passby (cfs) **26.43**

DEP Comments:

Source **Middle Island Creek @ Barnes Withdrawal Site** Doddridge Owner: **Ellen L. Barnes**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
9/15/2013	9/15/2014	6,600,000		39.29958	-80.75694

☐ Regulated Stream? Ref. Gauge ID: **3114500** MIDDLE ISLAND CREEK AT LITTLE, WV

Max. Pump rate (gpm): **1,260** Min. Gauge Reading (cfs): **59.06** Min. Passby (cfs) **26.39**

DEP Comments:

Source **Meathouse Fork @ Spiker Withdrawal Site** Doddridge Owner: **John & Sue Spiker**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
9/15/2013	9/15/2014	6,600,000		39.2591	-80.72489

☐ Regulated Stream? Ref. Gauge ID: **3114500** MIDDLE ISLAND CREEK AT LITTLE, WV

Max. Pump rate (gpm): **1,260** Min. Gauge Reading (cfs): **74.77** Min. Passby (cfs) **9.26**

DEP Comments:

Source **South Fork of Hughes River @ Upper Wizard Run** Doddridge Owner: **17-06381 Morris**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
9/15/2013	9/15/2014	6,600,000		39.189998	-80.79511

☐ Regulated Stream? Ref. Gauge ID: 3155220 SOUTH FORK HUGHES RIVER BELOW MACFARLAN, WV

Max. Pump rate (gpm): 1,260 Min. Gauge Reading (cfs): 33.12 Min. Passby (cfs) 0.64

DEP Comments:

Source **South Fork of Hughes River @ Harmony Road** Doddridge Owner: **I.L. Morris**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
9/15/2013	9/15/2014	6,600,000		39.1962	-80.81442

☐ Regulated Stream? Ref. Gauge ID: 3155220 SOUTH FORK HUGHES RIVER BELOW MACFARLAN, WV

Max. Pump rate (gpm): 1,260 Min. Gauge Reading (cfs): 33.12 Min. Passby (cfs) 0.98

DEP Comments:

Source **Straight Fork @ Maxson Withdrawal Site** Ritchie Owner: **Douglas L. Maxson**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
9/15/2013	9/15/2014	6,600,000		39.144317	-80.848587

☐ Regulated Stream? Ref. Gauge ID: 3155220 SOUTH FORK HUGHES RIVER BELOW MACFARLAN, WV

Max. Pump rate (gpm): 1,680 Min. Gauge Reading (cfs): 36.74 Min. Passby (cfs) 2.45

DEP Comments:

Source

Middle Fork @ Janscheck Withdrawal Site

Doddridge

Owner:

Mary Jo Janscheck

17-06331

Start Date

End Date

Total Volume (gal)

Max. daily purchase (gal)

Intake Latitude: Intake Longitude:

9/15/2013

9/15/2014

6,600,000

39.151388

-80.812222

☐ Regulated Stream?

Ref. Gauge ID:

3155220

SOUTH FORK HUGHES RIVER BELOW MACFARLAN, WV

Max. Pump rate (gpm): **1,260**

Min. Gauge Reading (cfs):

35.81

Min. Passby (cfs)

0.86

DEP Comments:

Source Detail

17-06331

WMP-01495

API/ID Number: 047-017-06331

Operator: EQT Production Company

513142 (OXF156H5)

Source ID: 26259 Source Name Ohio River @ Westbrook Trucking Site
Stephen R. and Janet Sue Westbrook

Source Latitude: 39.384455

Source Longitude: -81.25645

HUC-8 Code: 5030201

Drainage Area (sq. mi.): 25000 County: Pleasants

☐ Endangered Species? ☒ Mussel Stream?

☐ Trout Stream? ☐ Tier 3?

☐ Regulated Stream? Ohio River Min. Flow

☐ Proximate PSD?

☐ Gauged Stream?

Anticipated withdrawal start date: 9/15/2013

Anticipated withdrawal end date: 9/15/2014

Total Volume from Source (gal): 6,600,000

Max. Pump rate (gpm): 1,260

Max. Simultaneous Trucks: 0

Max. Truck pump rate (gpm): 0

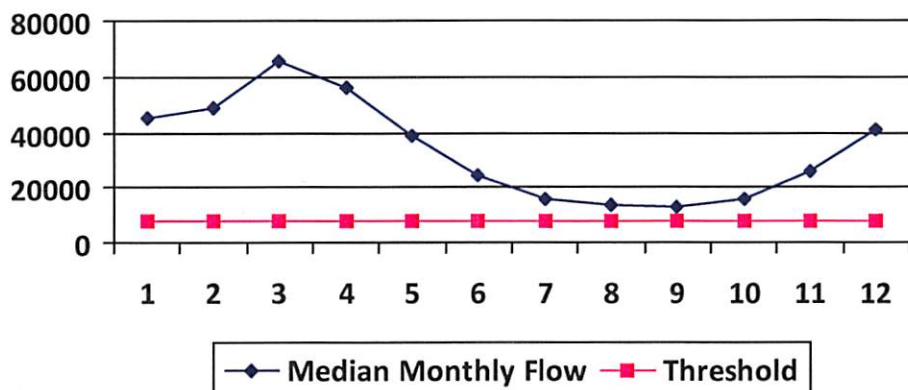
Reference Gaug 9999999 Ohio River Station: Willow Island Lock & Dam

Drainage Area (sq. mi.) 25,000.00

Gauge Threshold (cfs): 6468

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	45,700.00	-	-
2	49,200.00	-	-
3	65,700.00	-	-
4	56,100.00	-	-
5	38,700.00	-	-
6	24,300.00	-	-
7	16,000.00	-	-
8	13,400.00	-	-
9	12,800.00	-	-
10	15,500.00	-	-
11	26,300.00	-	-
12	41,300.00	-	-

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs): -

Upstream Demand (cfs): 0.00

Downstream Demand (cfs): 0.00

Pump rate (cfs): 2.81

Headwater Safety (cfs): 0.00

Ungauged Stream Safety (cfs): 1,617.00

Min. Gauge Reading (cfs): -

Passby at Location (cfs): -

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

Source Detail

17-06331

WMP- 01495

API/ID Number: 047-017-06331

Operator: EQT Production Company

513142 (OXF156H5)

Source ID: 26260 Source Name: Ohio River @ Select Energy
Select Energy

Source Latitude: 39.346473

Source Longitude: -81.338727

HUC-8 Code: 5030201

Drainage Area (sq. mi.): 25000 County: Pleasants

☐ Endangered Species? ☒ Mussel Stream?

☐ Trout Stream? ☐ Tier 3?

☒ Regulated Stream? Ohio River Min. Flow

☐ Proximate PSD?

☒ Gauged Stream?

Anticipated withdrawal start date: 9/15/2013

Anticipated withdrawal end date: 9/15/2014

Total Volume from Source (gal): 6,600,000

Max. Pump rate (gpm): 1,500

Max. Simultaneous Trucks: 0

Max. Truck pump rate (gpm): 0

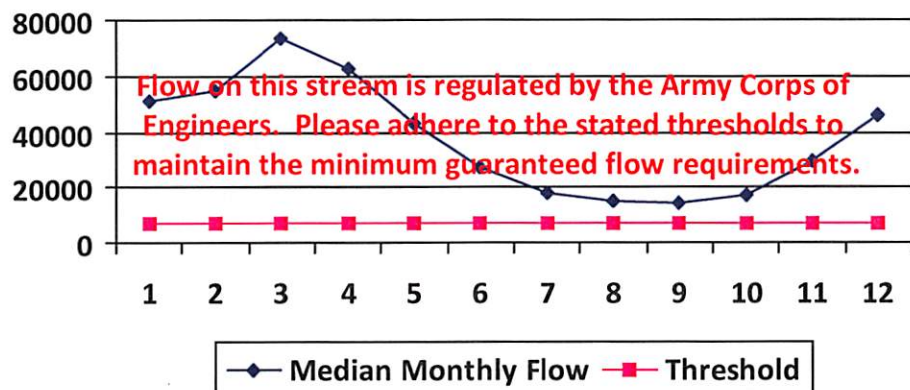
Reference Gaug: 9999998 Ohio River Station: Racine Dam

Drainage Area (sq. mi.): 25,000.00

Gauge Threshold (cfs): 7216

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	50,956.00	-	-
2	54,858.00	-	-
3	73,256.00	-	-
4	62,552.00	-	-
5	43,151.00	-	-
6	27,095.00	-	-
7	17,840.00	-	-
8	14,941.00	-	-
9	14,272.00	-	-
10	17,283.00	-	-
11	29,325.00	-	-
12	46,050.00	-	-

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs): -

Upstream Demand (cfs): 0.00

Downstream Demand (cfs): 0.00

Pump rate (cfs): 3.34

Headwater Safety (cfs): 0.00

Ungauged Stream Safety (cfs): 0.00

Min. Gauge Reading (cfs): -

Passby at Location (cfs): -

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

Source Detail

17-06331

WMP- 01495

API/ID Number:

047-017-06331

Operator:

EQT Production Company

513142 (OXF156H5)

Source ID: 26261

Source Name Middle Island Creek @ Travis Truck Pad
Michael J. Travis

Source Latitude: 39.308545

Source Longitude: -80.781102

HUC-8 Code: 5030201

Drainage Area (sq. mi.): 122.83

County: Doddridge

Anticipated withdrawal start date: 9/15/2013

Anticipated withdrawal end date: 9/15/2014

Total Volume from Source (gal): 6,600,000

Max. Pump rate (gpm): 4,200

Max. Simultaneous Trucks: 10

Max. Truck pump rate (gpm) 420

☒ Endangered Species? ☒ Mussel Stream?

☐ Trout Stream?

☐ Tier 3?

☐ Regulated Stream?

☒ Proximate PSD?

West Union Municipal Water

☒ Gauged Stream?

Reference Gaug

3114500

MIDDLE ISLAND CREEK AT LITTLE, WV

Drainage Area (sq. mi.)

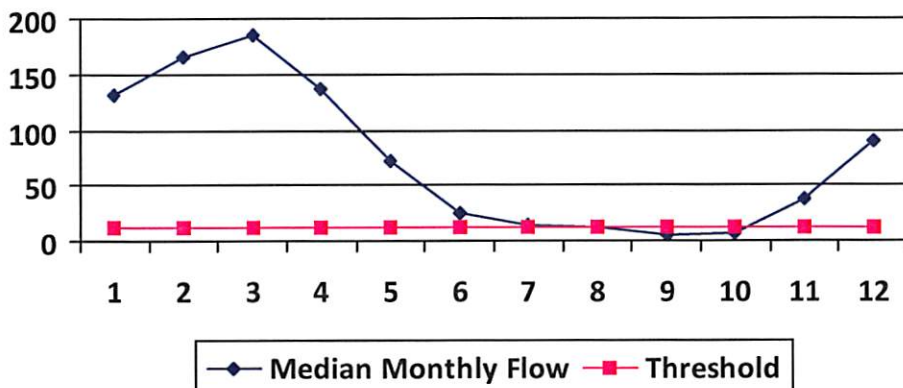
458.00

Gauge Threshold (cfs):

45

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	131.72	30.99	101.10
2	165.69	30.99	135.07
3	185.40	30.99	154.78
4	137.68	30.99	107.05
5	72.63	30.99	42.00
6	25.36	30.99	-5.26
7	14.35	30.99	-16.27
8	11.82	30.99	-18.81
9	6.05	30.99	-24.57
10	7.60	30.99	-23.02
11	37.14	30.99	6.51
12	90.73	30.99	60.11

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs): 12.07

Upstream Demand (cfs): 6.55

Downstream Demand (cfs): 13.24

Pump rate (cfs): 9.36

Headwater Safety (cfs): 3.02

Ungauged Stream Safety (cfs): 0.00

Min. Gauge Reading (cfs): 72.16

Passby at Location (cfs): 28.33

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

Source Detail

17-06331

WMP- 01495

API/ID Number:

047-017-06331

Operator:

EQT Production Company

513142 (OXF156H5)

Source ID: 26262

Source Name

Middle Island Creek @ Rock Run

Source Latitude: 39.298763

William Whitehill

Source Longitude: -80.760682

HUC-8 Code: 5030201

Drainage Area (sq. mi.): 107.35

County: Doddridge

Anticipated withdrawal start date: 9/15/2013

Anticipated withdrawal end date: 9/15/2014

Total Volume from Source (gal): 6,600,000

Max. Pump rate (gpm): 1,680

Max. Simultaneous Trucks: 4

Max. Truck pump rate (gpm) 420

☒ Endangered Species? ☒ Mussel Stream?

☐ Trout Stream?

☐ Tier 3?

☐ Regulated Stream?

☒ Proximate PSD?

West Union Municipal Water

☒ Gauged Stream?

Reference Gaug

3114500

MIDDLE ISLAND CREEK AT LITTLE, WV

Drainage Area (sq. mi.)

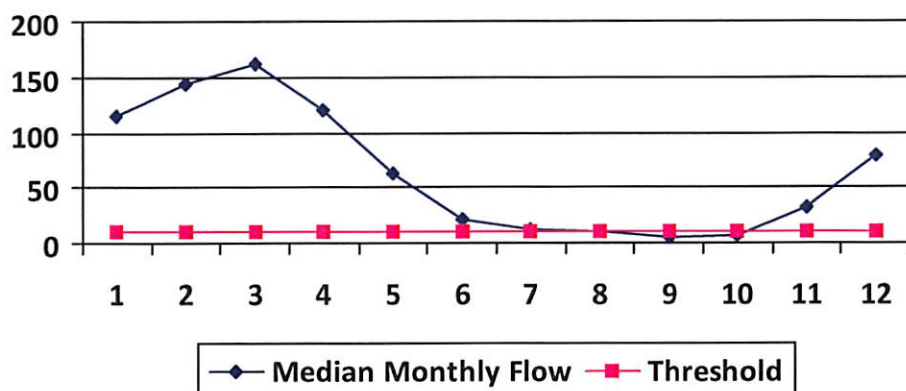
458.00

Gauge Threshold (cfs):

45

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	115.12	19.74	95.58
2	144.81	19.74	125.27
3	162.04	19.74	142.50
4	120.33	19.74	100.79
5	63.47	19.74	43.93
6	22.17	19.74	2.63
7	12.54	19.74	-7.00
8	10.33	19.74	-9.21
9	5.29	19.74	-14.25
10	6.65	19.74	-12.89
11	32.46	19.74	12.91
12	79.30	19.74	59.76

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs): 10.55

Upstream Demand (cfs): 2.81

Downstream Demand (cfs): 13.24

Pump rate (cfs): 3.74

Headwater Safety (cfs): 2.64

Ungauged Stream Safety (cfs): 0.00

Min. Gauge Reading (cfs): 62.80

Passby at Location (cfs): 26.42

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

Source Detail

17-06331

WMP- 01495

API/ID Number:

047-017-06331

Operator:

EQT Production Company

513142 (OXF156H5)

Source ID: 26263

Source Name

Middle Island Creek @ Barnes Withdrawal Site

Source Latitude: 39.29958

Ellen L. Barnes

Source Longitude: -80.75694

HUC-8 Code: 5030201

Drainage Area (sq. mi.): 107.08

County:

Doddridge

Anticipated withdrawal start date: 9/15/2013

Anticipated withdrawal end date: 9/15/2014

Total Volume from Source (gal): 6,600,000

Max. Pump rate (gpm): 1,260

Max. Simultaneous Trucks: 0

Max. Truck pump rate (gpm) 0

☒ Endangered Species?

☒ Mussel Stream?

☐ Trout Stream?

☐ Tier 3?

☐ Regulated Stream?

☒ Proximate PSD?

West Union

☐ Gauged Stream?

Reference Gaug

3114500

MIDDLE ISLAND CREEK AT LITTLE, WV

Drainage Area (sq. mi.)

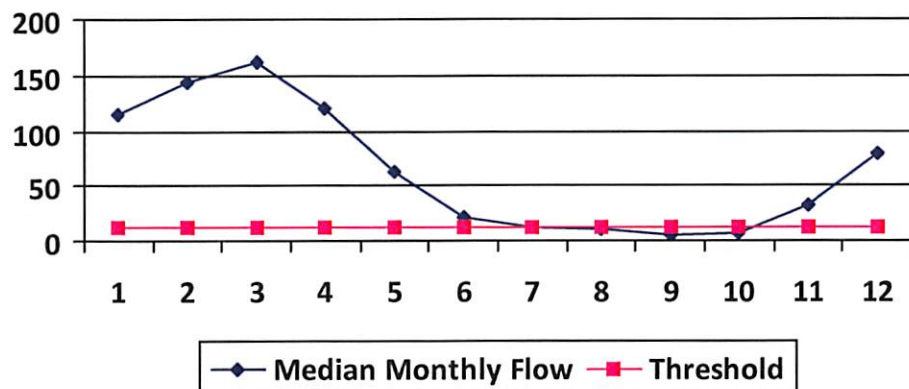
458.00

Gauge Threshold (cfs):

45

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	114.83	18.59	96.42
2	144.45	18.59	126.03
3	161.63	18.59	143.21
4	120.02	18.59	101.61
5	63.31	18.59	44.90
6	22.11	18.59	3.69
7	12.51	18.59	-5.91
8	10.30	18.59	-8.12
9	5.28	18.59	-13.14
10	6.63	18.59	-11.79
11	32.37	18.59	13.96
12	79.10	18.59	60.68

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs): 10.52

Upstream Demand (cfs): 0.00

Downstream Demand (cfs): 13.24

Pump rate (cfs): 2.81

Headwater Safety (cfs): 2.63

Ungauged Stream Safety (cfs): 2.63

Min. Gauge Reading (cfs): 70.31

Passby at Location (cfs): 29.02

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

Source Detail

17-06331

WMP-01495

API/ID Number: 047-017-06331

Operator: EQT Production Company

513142 (OXF156H5)

Source ID: 26264 Source Name: Meathouse Fork @ Spiker Withdrawal Site
John & Sue Spiker

Source Latitude: 39.2591

Source Longitude: -80.72489

HUC-8 Code: 5030201

Drainage Area (sq. mi.): 62.75 County: Doddridge

Anticipated withdrawal start date: 9/15/2013

Anticipated withdrawal end date: 9/15/2014

☒ Endangered Species? ☒ Mussel Stream?

☐ Trout Stream? ☐ Tier 3?

Total Volume from Source (gal): 6,600,000

☐ Regulated Stream?

Max. Pump rate (gpm): 1,260

☐ Proximate PSD?

Max. Simultaneous Trucks: 0

☐ Gauged Stream?

Max. Truck pump rate (gpm): 0

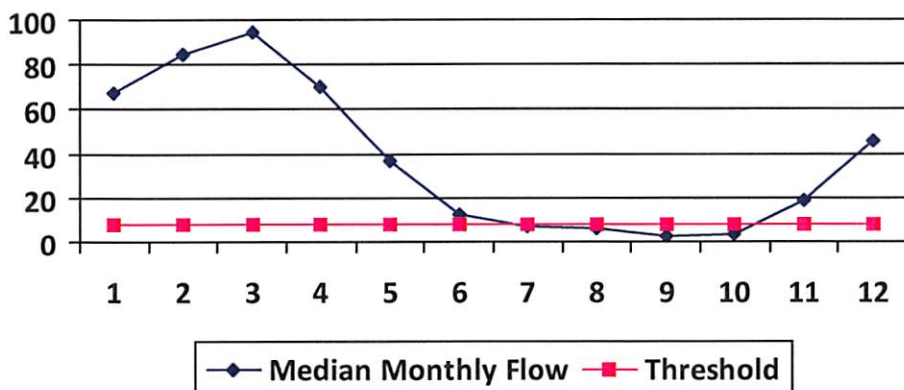
Reference Gaug: 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

Drainage Area (sq. mi.): 458.00

Gauge Threshold (cfs): 45

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	67.29	16.52	51.09
2	84.65	16.52	68.45
3	94.72	16.52	78.52
4	70.34	16.52	54.14
5	37.10	16.52	20.90
6	12.96	16.52	-3.24
7	7.33	16.52	-8.87
8	6.04	16.52	-10.16
9	3.09	16.52	-13.11
10	3.88	16.52	-12.32
11	18.97	16.52	2.77
12	46.35	16.52	30.15

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs): 6.17

Upstream Demand (cfs): 4.46

Downstream Demand (cfs): 0.00

Pump rate (cfs): 2.81

Headwater Safety (cfs): 1.54

Ungauged Stream Safety (cfs): 1.54

Min. Gauge Reading (cfs): 74.77

Passby at Location (cfs): 9.25

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

Source Detail

17-06331

WMP-01495

API/ID Number: 047-017-06331

Operator: EQT Production Company

513142 (OXF156H5)

Source ID: 26265 Source Name: South Fork of Hughes River @ Upper Wizard Run
I.L. Morris

Source Latitude: 39.189998

Source Longitude: -80.79511

HUC-8 Code: 5030203

Drainage Area (sq. mi.): 5.33 County: Doddridge

☐ Endangered Species? ☒ Mussel Stream?

☐ Trout Stream? ☐ Tier 3?

☐ Regulated Stream?

☐ Proximate PSD?

☒ Gauged Stream?

Anticipated withdrawal start date: 9/15/2013

Anticipated withdrawal end date: 9/15/2014

Total Volume from Source (gal): 6,600,000

Max. Pump rate (gpm): 1,260

Max. Simultaneous Trucks: 0

Max. Truck pump rate (gpm): 0

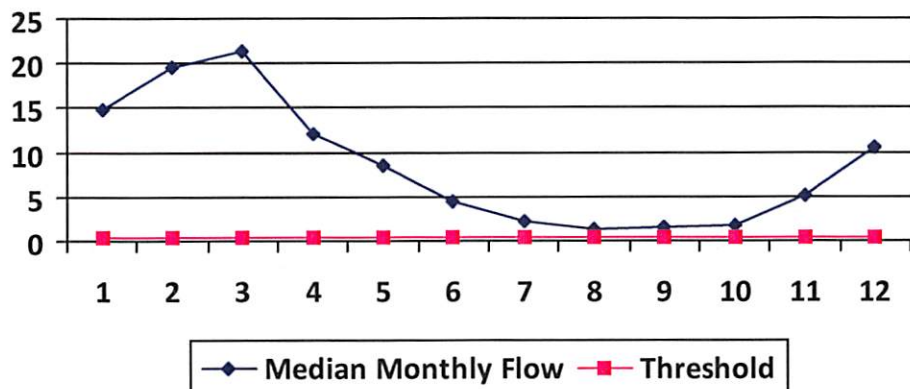
Reference Gaug: 3155220 SOUTH FORK HUGHES RIVER BELOW MACFARLAN, WV

Drainage Area (sq. mi.): 229.00

Gauge Threshold (cfs): 22

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	14.97	6.26	8.79
2	19.52	6.26	13.33
3	21.37	6.26	15.19
4	12.08	6.26	5.90
5	8.48	6.26	2.29
6	4.56	6.26	-1.63
7	2.26	6.26	-3.93
8	1.31	6.26	-4.88
9	1.57	6.26	-4.62
10	1.70	6.26	-4.48
11	5.09	6.26	-1.09
12	10.51	6.26	4.32

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs): 0.51

Upstream Demand (cfs): 2.81

Downstream Demand (cfs): 0.00

Pump rate (cfs): 2.81

Headwater Safety (cfs): 0.13

Ungauged Stream Safety (cfs): 0.00

Min. Gauge Reading (cfs): 33.12

Passby at Location (cfs): 0.64

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

Source Detail

17-06331

WMP- 01495

API/ID Number: 047-017-06331

Operator: EQT Production Company

513142 (OXF156H5)

Source ID: 26266 Source Name: South Fork of Hughes River @ Harmony Road
I.L. Morris

Source Latitude: 39.1962

Source Longitude: -80.81442

HUC-8 Code: 5030203

Drainage Area (sq. mi.): 8.1 County: Doddridge

Anticipated withdrawal start date: 9/15/2013

Anticipated withdrawal end date: 9/15/2014

Total Volume from Source (gal): 6,600,000

Max. Pump rate (gpm): 1,260

Max. Simultaneous Trucks: 0

Max. Truck pump rate (gpm): 0

☐ Endangered Species? ☒ Mussel Stream?

☐ Trout Stream? ☐ Tier 3?

☐ Regulated Stream?

☐ Proximate PSD?

☒ Gauged Stream?

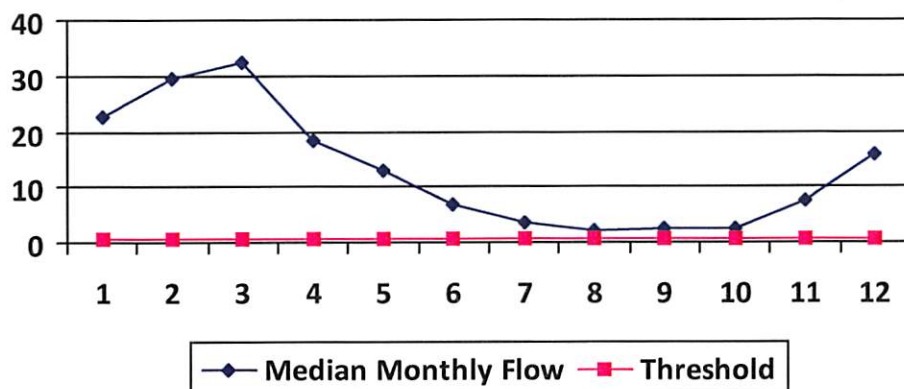
Reference Gaug: 3155220 SOUTH FORK HUGHES RIVER BELOW MACFARLAN, WV

Drainage Area (sq. mi.): 229.00

Gauge Threshold (cfs): 22

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	22.75	6.59	16.28
2	29.66	6.59	23.19
3	32.48	6.59	26.01
4	18.36	6.59	11.89
5	12.88	6.59	6.41
6	6.92	6.59	0.45
7	3.43	6.59	-3.04
8	1.98	6.59	-4.49
9	2.38	6.59	-4.09
10	2.59	6.59	-3.88
11	7.74	6.59	1.27
12	15.97	6.59	9.50

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs): 0.78

Upstream Demand (cfs): 2.81

Downstream Demand (cfs): 0.00

Pump rate (cfs): 2.81

Headwater Safety (cfs): 0.19

Ungauged Stream Safety (cfs): 0.00

Min. Gauge Reading (cfs): 33.12

Passby at Location (cfs): 0.97

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

Source Detail

17-06331

WMP-01495

API/ID Number: 047-017-06331

Operator: EQT Production Company

513142 (OXF156H5)

Source ID: 26267 Source Name: Straight Fork @ Maxson Withdrawal Site
Douglas L. Maxson

Source Latitude: 39.144317

Source Longitude: -80.848587

HUC-8 Code: 5030203

Drainage Area (sq. mi.): 16.99 County: Ritchie

☒ Endangered Species? ☒ Mussel Stream?

☐ Trout Stream? ☐ Tier 3?

☐ Regulated Stream?

☐ Proximate PSD?

☐ Gauged Stream?

Anticipated withdrawal start date: 9/15/2013

Anticipated withdrawal end date: 9/15/2014

Total Volume from Source (gal): 6,600,000

Max. Pump rate (gpm): 1,680

Max. Simultaneous Trucks: 4

Max. Truck pump rate (gpm): 420

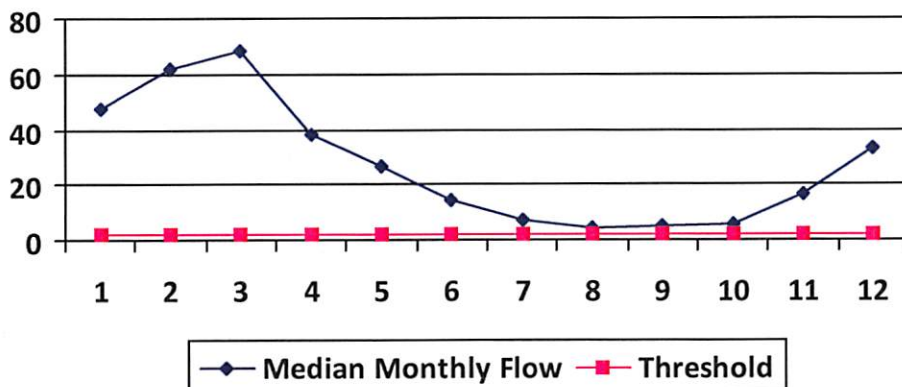
Reference Gaug: 3155220 SOUTH FORK HUGHES RIVER BELOW MACFARLAN, WV

Drainage Area (sq. mi.): 229.00

Gauge Threshold (cfs): 22

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	47.72	6.19	41.62
2	62.22	6.19	56.12
3	68.13	6.19	62.04
4	38.52	6.19	32.42
5	27.03	6.19	20.93
6	14.52	6.19	8.42
7	7.20	6.19	1.10
8	4.16	6.19	-1.94
9	5.00	6.19	-1.10
10	5.43	6.19	-0.67
11	16.23	6.19	10.13
12	33.50	6.19	27.40

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs): 1.63

Upstream Demand (cfs): 0.00

Downstream Demand (cfs): 0.00

Pump rate (cfs): 3.74

Headwater Safety (cfs): 0.41

Ungauged Stream Safety (cfs): 0.41

Min. Gauge Reading (cfs): 36.74

Passby at Location (cfs): 2.45

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

Source Detail

17-06331

WMP- 01495

API/ID Number:

047-017-06331

Operator:

EQT Production Company

513142 (OXF156H5)

Source ID: 26268

Source Name

Middle Fork @ Janscheck Withdrawal Site

Source Latitude: 39.151388

Mary Jo Janscheck

Source Longitude: -80.812222

HUC-8 Code: 5030203

Drainage Area (sq. mi.):

5.92

County:

Doddridge

Anticipated withdrawal start date:

9/15/2013

Anticipated withdrawal end date:

9/15/2014

Total Volume from Source (gal):

6,600,000

Max. Pump rate (gpm):

1,260

Max. Simultaneous Trucks:

Max. Truck pump rate (gpm)

☒ Endangered Species?

☒ Mussel Stream?

☐ Trout Stream?

☐ Tier 3?

☐ Regulated Stream?

☐ Proximate PSD?

☐ Gauged Stream?

Reference Gaug

3155220

SOUTH FORK HUGHES RIVER BELOW MACFARLAN, WV

Drainage Area (sq. mi.)

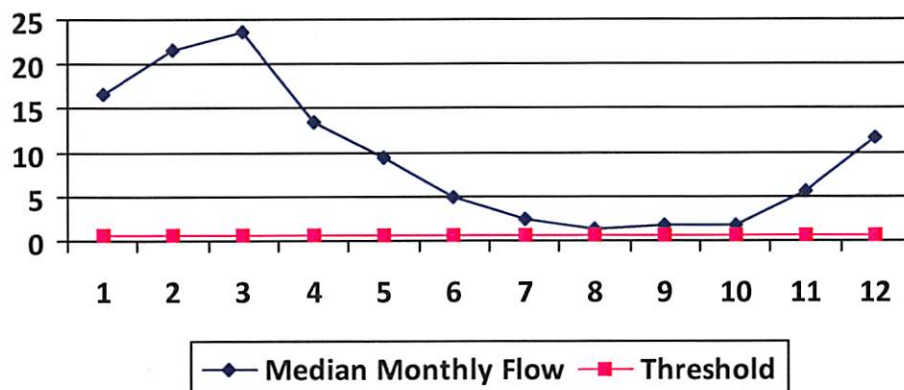
229.00

Gauge Threshold (cfs):

22

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	16.63	3.66	13.10
2	21.68	3.66	18.15
3	23.74	3.66	20.21
4	13.42	3.66	9.89
5	9.42	3.66	5.88
6	5.06	3.66	1.53
7	2.51	3.66	-1.02
8	1.45	3.66	-2.08
9	1.74	3.66	-1.79
10	1.89	3.66	-1.64
11	5.66	3.66	2.12
12	11.67	3.66	8.14

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs):

0.57

Upstream Demand (cfs):

0.00

Downstream Demand (cfs):

0.00

Pump rate (cfs):

2.81

Headwater Safety (cfs):

0.14

Ungauged Stream Safety (cfs):

0.14

Min. Gauge Reading (cfs):

35.81

Passby at Location (cfs):

0.85

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.



Water Management Plan: Secondary Water Sources



WMP- 01494

API/ID Number

047-017-06330

Operator:

EQT Production Company

513141 (OXF156H4)

Important:

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

Ground Water

Source ID:	26255	Source Name	Groundwater Well TW#1		Source start date:	9/15/2013
					Source end date:	9/15/2014
Source Lat:	39.56059	Source Long:	-80.56027	County	Wetzel	
Max. Daily Purchase (gal)		Total Volume from Source (gal):	8,300,000			
DEP Comments:						

17-06831

WMP- 01494

API/ID Number

047-017-06330

Operator:

EQT Production Company

513141 (OXF156H4)

Important:

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

Lake/Reservoir

Source ID:	26256	Source Name	Pennsboro Lake		Source start date:	9/15/2013
					Source end date:	9/15/2014
Source Lat:	39.281689	Source Long:	-80.925526	County	Ritchie	
Max. Daily Purchase (gal)		Total Volume from Source (gal):	8,300,000			
DEP Comments:						

WMP- 01494

API/ID Number

047-017-06330

Operator:

EQT Production Company

513141 (OXF156H4)

Important:

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

Multi-site impoundment

Source ID:	26257	Source Name	Davies Centralized Freshwater Impoundment		Source start date:	9/15/2013
					Source end date:	9/15/2014
Source Lat:	39.269635	Source Long:	-80.77711	County	Doddridge	
Max. Daily Purchase (gal)		Total Volume from Source (gal):	8,300,000			
DEP Comments:						

The intake identified above has been defined in a previous water management plan. The thresholds established in that plan govern this water management plan unless otherwise noted.

Reference: WMP-1083

Source ID:	27403	Source Name	OXF149 Tank Pad A		Source start date:	9/15/2013
					Source end date:	9/15/2014
Source Lat:	39.221932	Source Long:	-80.799873	County	Doddridge	
Max. Daily Purchase (gal)		Total Volume from Source (gal):	8,300,000			
DEP Comments:						

The intake identified above has been defined in a previous water management plan. The thresholds established in that plan govern this water management plan unless otherwise noted.

Reference: WMP-1532

WMP-01494

API/ID Number 047-017-06330

Operator: EQT Production Company

513141 (OXF156H4)

Important:

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

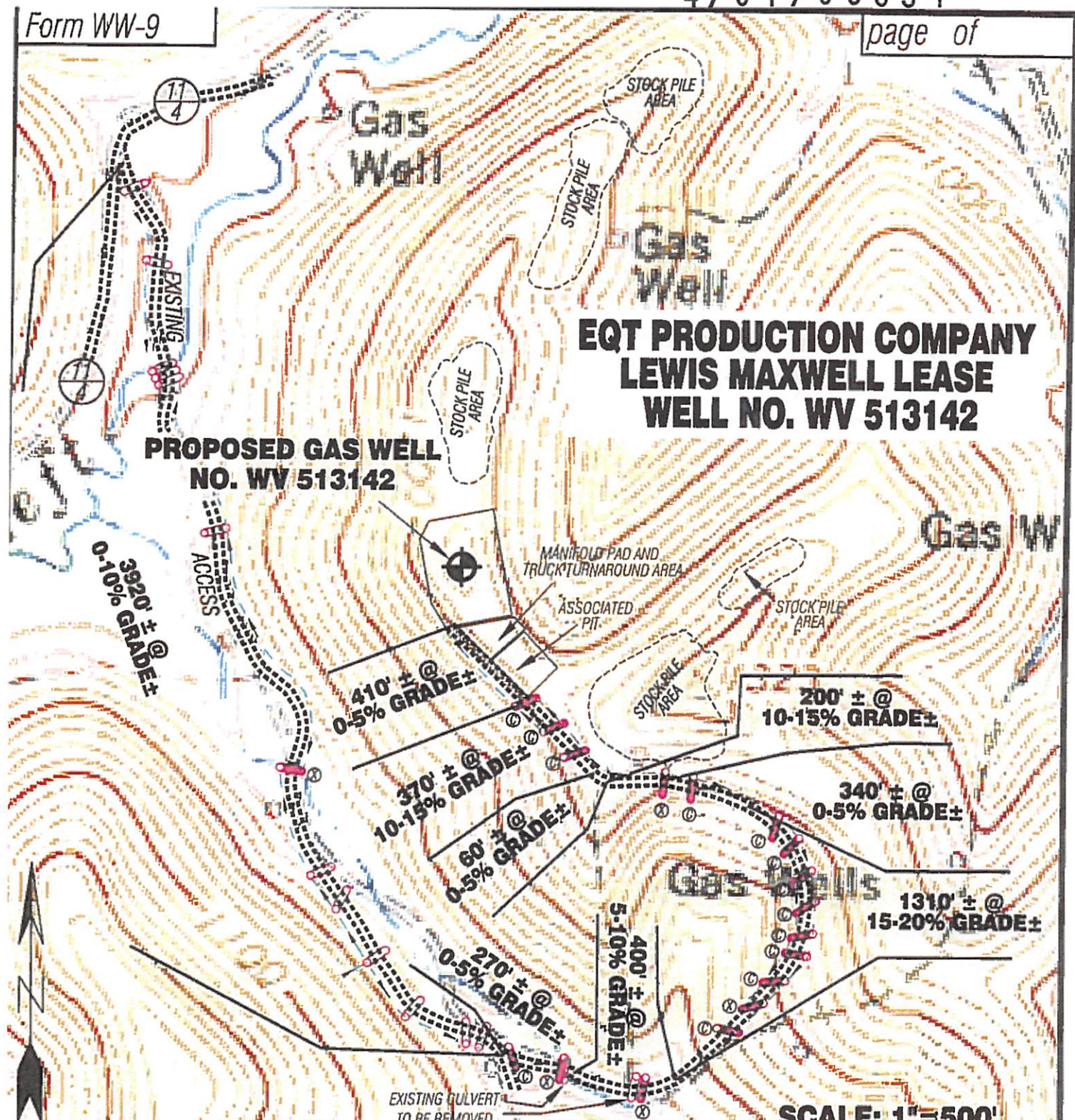
- For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

Source ID:	27404	Source Name	OXF149 Tank Pad B		Source start date:	9/15/2003
					Source end date:	9/15/2014
Source Lat:	39.221733	Source Long:	-80.798991	County	Doddridge	
Max. Daily Purchase (gal)		Total Volume from Source (gal):	8,300,000			
DEP Comments:						

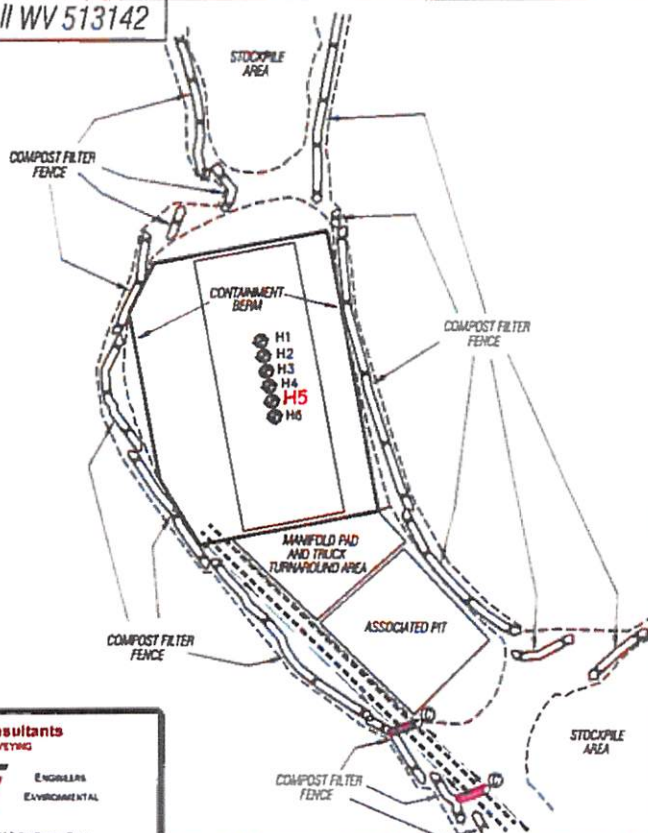
The intake identified above has been defined in a previous water management plan. The thresholds established in that plan govern this water management plan unless otherwise noted.

Reference: WMP-1533**Recycled Frac Water**

Source ID:	26258	Source Name	Various		Source start date:	9/15/2013
					Source end date:	9/15/2014
Source Lat:		Source Long:		County		
Max. Daily Purchase (gal)		Total Volume from Source (gal):	8,300,000			
DEP Comments:						



Detail Sketch for Proposed Well WV 513142



OXF156 WELLS

H1-WV 513138

H2-WV 513139

H3-WV 513140

H4-WV 513141

H5-WV 513142

H6-WV 513143

Not To Scale

Professional Energy Consultants
A DIVISION OF SMITH LAND SURVEYINGSURVEYORS
PROJECT MGMT.**SLS**ENGINEERS
ENVIRONMENTAL228 West Main St.
P.O. Box 152
Clarksburg, WV 26301
(304) 462-44246060 Davis Bottom Road
Shelbyville, KY 40467
(502) 877-0811TOPO SECTION OF OXFORD 7.5'
USGS TOPO QUADRANGLE

ALL ROADS SHOWN HEREON ARE EXISTING UNLESS OTHERWISE NOTED AND SHALL BE MAINTAINED IN ACCORDANCE WITH WV D.E.P. OIL AND GAS BNP MANUAL ENTRANCES AT COUNTY/STATE ROADS SHALL BE MAINTAINED IN ACCORDANCE WITH WV D.O.T. REGULATION SEPARATE PERMITS MAY BE REQUIRED BY THE D.O.T.

SEDIMENT BASINS (TRAPS) AND APPROPRIATE EROSION CONTROL BARRIERS ARE TO BE CONSTRUCTED AT ALL CULVERT AND CROSS DRAIN INLETS AND OUTLETS AS REQUIRED IN THE WV D.E.P. OIL AND GAS BNP MANUAL. FIELD CONDITIONS (ROCK OUTCROPS AND BEDROCK) MAY PROHIBIT INLET TRAPS BEING INSTALLED. WHEN THESE CONDITIONS EXIST ADDITIONAL EROSION CONTROL MEASURES SHALL BE EVALUATED AND UTILIZED AS NEEDED.

EARTHWORK CONTRACTORS ARE RESPONSIBLE FOR NOTIFICATION TO THE OPERATOR AND INSPECTOR PRIOR TO ANY DEVIATION FROM THIS PLAN.

TEMPORARY SEED & MULCH ALL SLOPES AFTER CONSTRUCTION OF LOCATION.

CUT & STACK ALL MARKETABLE TIMBER.

STACKED BRUSH MAY BE USED FOR SEDIMENT CONTROL.

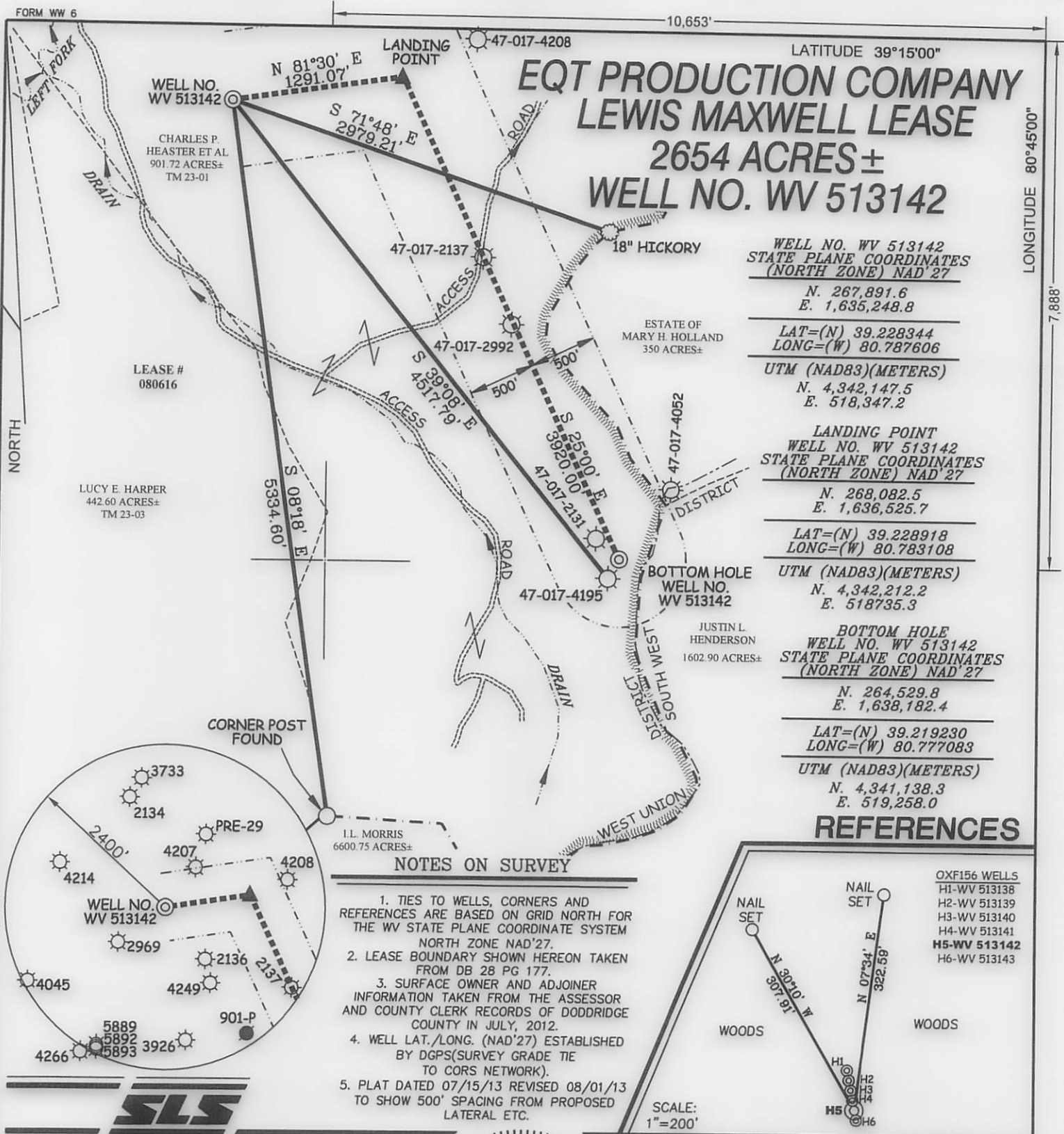
APPLICATIONS FOR SEPARATE PLACEMENT OF ACCESS AT STREAM CROSSINGS HAVE BEEN REVIEWED AND APPROVED.

— EXISTING CULVERT

⊗ — PROPOSED STREAM CROSSING

RECEIVED
Office of Oil & Gas
SEP 13 2013

WV Department of
Environmental Protection



I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DIVISION OF ENVIRONMENTAL PROTECTION.

P.S.
677

Gregory A. Smith



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

DATE AUGUST 1, 20 13

OPERATORS WELL NO. WV 513142

API WELL NO. 47 — 017 — 06331
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/200 FILE NO. 6980P513142R
PROVEN SOURCE OF ELEVATION DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 1000'

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS



WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL IF "GAS" PRODUCTION X STORAGE DEEP SHALLOW X
LOCATION: ELEVATION 1,244'(GROUND) 1,202'(PROPOSED) WATERSHED LEFT FORK ARNOLDS CREEK
DISTRICT WEST UNION COUNTY DODDRIDGE QUADRANGLE OXFORD 7.5'
SURFACE OWNER CHARLES P. HEASTER ET AL ACREAGE 901.72 ±
ROYALTY OWNER LEWIS MAXWELL HRS ACREAGE 2654 ±
PROPOSED WORK: LEASE NO. 080616
DRILL X CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG AND ABANDON CLEAN OUT AND REPLUG OTHER
PHYSICAL CHANGE IN WELL (SPECIFY) TARGET FORMATION MARCELLUS
ESTIMATED DEPTH

WELL OPERATOR EQT PRODUCTION COMPANY
ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280
BRIDGEPORT, WV 26330

DESIGNATED AGENT REX C. RAY
ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280
BRIDGEPORT, WV 26330

COUNTY NAME
PERMIT